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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/590,496 | 06/09/2000 | Stephen M. Lipka | NAO-0001 | 2489 |

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| EXAMINER | |
|---|---|
| HA, NGUYEN T | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2831 | |

DATE MAILED: 10/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/590,496 | LIPKA ET AL. | |
| | Examiner | Art Unit | |
| | Nguyen T Ha | 2831 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *03 August 2004* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claims _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved.

12)☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. § 119**

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

**Attachment(s)**

15)☐ Notice of References Cited (PTO-892)
16)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
17)☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
18)☐ Interview Summary (PTO-413) Paper No(s). _____ .
19)☐ Notice of Informal Patent Application (PTO-152)
20)☐ Other: .

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments with respect to claims 1-24 have been considered but are moot in view of the new ground(s) of rejection.

### *Claim Objections*

2. Claim 1 is objected to because of the following informalities:

Claim 1, line 5, "an liquid" should be - - a liquid - -.

. Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-11 and 14-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Penneau et al. (US 6,671,166) in view of Sasaki et al (US 5,279,910).

Regarding claim 1, Penneau et al. disclose an asymmetric supercapacitor (1) (figure 1) comprising:

- a positive electrode (2) comprising a current collector (4);
- a negative electrode (3) comprising carbonaceous active material (column 6, lines 16-17);
- a liquid electrolyte, wherein the liquid electrolyte is a non-aqueous electrolyte (abstract); and
- a separator plate (6).

**Penneau et al. lack** the positive electrode comprising an active material selected from the group consisting of manganese dioxide, silver oxide, iron sulfide and mixtures thereof.

**Sasaki et al. teach** a positive electrode comprising manganese dioxide (column 6, lines 24-29).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the positive electrode assembly of Sasaki substituted into Penneau in order to increase the capacitance for the capacitor.

Regarding claim 2, Penneau et al. further disclose the negative electrode comprises a current collector (5, column 6, lines 19-20).

Regarding claim 3, Penneau et al. disclose the current collector is selected from the group consisting of metal foil electrically conductive polymer composites (figure 1).

Regarding claim 4, the teaching of Sasaki et al. further disclose the carbonaceous active material comprises nanofibrous materials/activated carbon fiber (column 5, lines 1-9).

Regarding claims 5-7, the teaching of Penneau in view of Sasaki et al. includes all the claimed limitations with respect to claims 1 & 4 above, except for the carbonaceous active material is discrete carbon fibers less than 10 microns in diameter, 100 nm in diameter or 50 nm in diameter. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the carbonaceous active material is discrete carbon fibers less than 10 microns in diameter, 100 nm in diameter or 50 nm in diameter, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. ***In re Aller, 105 USPQ 233.***

Regarding claim 8, the teaching of Penneau in view of Sasaki et al. includes all the claimed limitations with respect to claim 1 above, except the negative electrode having a thickness about 50 microns to about 375 microns. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the negative electrode having a thickness about 50 microns to about 375 microns, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. ***In re Aller, 105 USPQ 233.***

Regarding claim 9, the teaching of Penneau in view of Sasaki et al. includes all the claimed limitations with respect to claim 1 above, except for the carbonaceous active material is non-woven mat, woven cloth or two dimensional sheet comprising carbonized polymer. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the carbonaceous active material is non-woven mat, woven cloth or two dimensional sheet comprising carbonized polymer, since the applicant does not solve a particular problem with this shape and more than mere change or form or shape is necessary for patentability. *Span-Deck Inc. v. Fab-Con, Inc. (CA 8, 1982) 215 USPQ 835.*

Regarding claim 10, Penneau et al. disclose the negative electrode further comprises a collection coating (figure 1).

Regarding claim 11, the teaching of Sasaki et al. further disclose the positive electrode active material comprises manganese dioxide (column 6, lines 27-29).

Regarding claim 14, the teaching of Sasaki et al. further disclose the active material is applied to the current collector by thermal spray/coat (column 4, lines 54-58).

Regarding claim 15, Penneau et al. disclose the positive electrode further comprises a binder (column 5, lines 4-8).

Regarding claim 16, Penneau et al. disclose the current collector is selected from the group consisting of metal foil electrically conductive polymer composites (figure 1).

Regarding claims 17 & 18, the teaching of Penneau in view of Sasaki et al. includes all the claimed limitations with respect to claim 1 above, except for the positive electrode thickness is less than about 250 microns or 50 microns. It would have been

obvious to one having ordinary skill in the art at the time the invention was made to have the positive electrode thickness is less than about 250 microns or 50 microns, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. ***In re Aller, 105 USPQ 233.***

Regarding claims 19-20, Penneau et al. disclose the electrolyte is selected from the group consisting of aqueous solutions of carbonates of alkali metals (column 5, lines 14-45).

Regarding claim 21, Sasaki et al. disclose an asymmetric supercapacitor (1) (figure 1) comprising:

- a positive electrode (2) comprising a current collector (4);
- a negative electrode (3) comprising carbonaceous active material (column 6, lines 16-17);
- an aqueous electrolyte solution (column 6, lines 21-22); and separator (6).

**Penneau et al. lack** the positive electrode comprising an active material selected from the group consisting of manganese dioxide, silver oxide, iron sulfide and mixtures thereof.

**Sasaki et al. teach** a positive electrode comprising manganese dioxide (column 6, lines 24-29).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the positive electrode assembly of Sasaki substituted into Penneau in order to increase the capacitance for the capacitor.

Regarding claim 22, Penneau et al. disclose the carbonaceous active material is nanofiber (column 5, lines 1-9).

5. Claims 12-13 and 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Penneau et al. (US 6,671,166) in view of Sasaki et al (US 5,279,910) as applied above, and further in view of Xiao et al (US 6,162,530).

Regarding claims 12-13 and 23-24, the teaching of Penneau in view of Sasaki includes all the claimed limitations with respect to claims 1 & 21 above, except for the manganese dioxide being nanostructured.

Xiao et al. teach a manganese dioxide being nanostructured (column 5, lines 48-50).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Xiao manganese dioxide into the capacitor of Penneau in view of Sasaki in order to facilitate intercalation of the conductive for the device.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nguyen T Ha whose telephone number is 571-272-1974. The examiner can normally be reached on Monday-Friday from 8:30AM to 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on 571-272-2800 ext. 31. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

***Nguyen T. Ha***
***October 5, 2004***

Dean A. Reichard 10/23/04

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